

**Notice of Allowability**

Application No.

10/673,272

Applicant(s)

DEISHI, SATOSHI

Examiner

Greg F. Cunningham

Art Unit

2628

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendments received 8/20/06 & 8/30/06.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

**DETAILED ACTION**

1. This action is responsive to amendment filed 8/10/2006 and 8/30/2006.
2. The disposition of the claims is as follows: claims 1-23 are pending in the application. Claims 1, 7, 13 and 18-23 are independent claims. Claims 18-23 are newly added.

***Drawings***

3. The drawings were received on 9/30/2003. These drawings are acceptable.

***Claim Rejections - 35 USC § 103***

4. In view of remarks, review of cited references and search for new prior art, the 103 rejections are withdrawn.

***Examiner's Amendment***

5. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone call with Martin Miller, (Registration No. 56,022) on 11/8/2006.

The application has been amended as follows:

Change Claim 10, first line from:

-- An image processing program product causing a computer to --

Art Unit: 2628

To now read as:

-- An image processing program product stored on a computer-readable medium for causing a computer to --

*Allowable Subject Matter*

6. Claims 1-23 are allowed.

7. The following is an examiner's statement of reasons for allowance:

Applicant's independent claims 1, 7, 10 and 13 stand novel over the related prior art. The previously cited art of Tabata (US 6,111,658), does make use of a matrix storing step of storing in a first memory a matrix of elements serving as pieces of order information; (14) a mask pattern creating step of determining mask locations in accordance with the pieces of order information in the matrix and creating mask patterns each conforming to one of gradations in an image to be printed; a dithering step of masking image data with the mask pattern conforming to one of the gradations which corresponds to the image data; and an image developing step of developing the image data masked by the dithering step in a frame memory.

However, does not disclose selecting from basic patterns longitudinally and laterally arranged a basic pattern remotest from any pixel assigned a number. Nor does the Abstract disclose assigning a pixel a number as recited in independent claim 1. Nor does Tabata teach selecting from basic patterns longitudinally and laterally arranged a basic pattern remotest from any pixel assigned a number or assigning a subsequent number to a pixel in such a selected basic pattern, wherein said second assignment portion repeats assignment to assign in said basic dither pattern a number indicating an order to be followed to illuminate a dot.

Art Unit: 2628

Therefore as claimed by the combined elements of independent claim 1, 7, 10, and 13, the cited references and prior art of record lack separately and in combination the elements of said claims. Claims 2-6, 8-9, 11-12 and 14-17 depend, respectively, from allowable independent claims 1, 7, 10, and 13 and therefore are also allowed.

The next closest prior art, Kakutani, (US 6,439,682 B1), discloses at least three different types of dots to be created in different ink weights by at least two different inks having an identical hue but different densities, the halftone processing is carried out in an appropriate sequence and according to an appropriate technique, which are determined by taking into account both the dispersibility of dots and the processing speed. Determines the on-off state of six different types of dots, which have different ink densities and ink weights, in the sequence of the large deep dot, the medium deep dot, the small deep dot, the large light dot, the medium light dot, and the small light dot.

But does not teach a basic dither pattern representing a first number of shades; associating a shade of a second number of shades with a shade of the first number of shades, wherein the second number of shades is smaller than the first number of shades; storing the associated shades in a table; detecting in said table an amount of variation in a density value of each shade of the first number of shades relative to the amount of variation of each associated shade of the second number of shades; and modifying the correspondence of the associated shade of the second number of shades and the shade of the first number of shades in the table based on the results of the detecting step as claimed in claims 18-20; nor employing a basic dither pattern capable of representing a first number of shades; associating a shade of a second number of shades with a shade of said first number of shades, wherein the second number of shades is

Art Unit: 2628

smaller than the first number of shades; storing the associated shades in a table; referring to said table to obtain a shade of said first number of shades that corresponds to a predetermined shade of said second number of shades, applying the obtained shade to print a density detection pattern; measuring the density values of printed density detection pattern with a sensor; modifying the value of the output of said sensor in accordance with said predetermined shade; and employing the modified value of the output of said sensor to modify a correspondence in said table as claimed in claims 21-23.

Therefore as claimed by the combined elements of independent claim 18-23, the cited references and prior art of record lack separately and in combination the elements of said claims.

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Responses***

9. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231. If applicant desires to fax a response, (703) 872-9306 may be used for formal communications.

*Inquiries*

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory F. Cunningham whose telephone number is (571) 272-7784.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

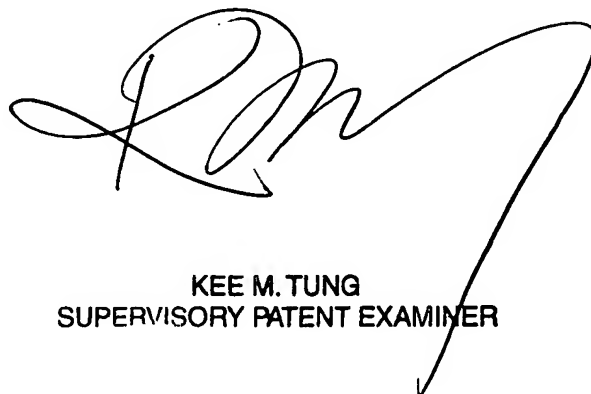


Greg Cunningham

Examiner

Art Unit 2628

11/8/2006



KEE M. TUNG  
SUPERVISORY PATENT EXAMINER